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yet been filed**

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(54) **Spacer and protector capsule for steel rods**

(57) Spacer and protector capsule, that can be connected or not - (1), for application in steel rods in concrete structures, acting as a spacer to the formwork, and/or as protector capsule when a protector element in the extremity is connecting it - (1). Spacer and protector capsule

for iron rods simultaneously or not, applicable use for all the diameters of steel rods, adjustable (4), made in any type of polymer, and employed to keep the steel rods of any diameter not only protected as re-covered to the prescribed distance(3) of the rules norms.

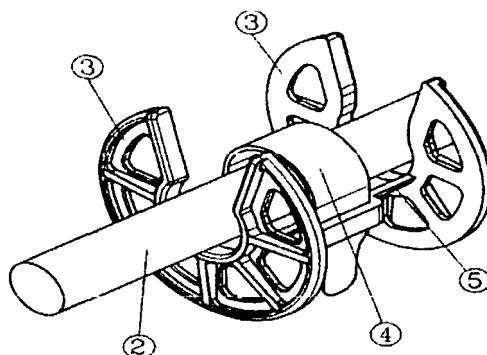


fig. 5

Description

[0001] The steel rods who constitute the concrete armatures must remain soaked in the concrete to a minimum distance of the periphery in such way that they can't remain in contact with the air to avoid the oxidation, for do not lose quality and never put in risk the structure of the concrete. Therefore the world-wide regulations establish a minimum distance of covering the iron rods to the periphery of the mass of the concrete. To guarantee such distance its usual to use the most varied objects such as pieces of concrete, plastic, rocks, etc. When plastic parts are used these, usually, have only one or two diameters and therefore they serve only for a specific diameter of a rod. With this invention it is intended to use plastic and recycled plastic conferring it the possibility of, being an only part consisting by two supports (3) and a circular serrated brace (4) that auto involving and holding the steel rod confers it an adherence and resistance to the traction in order to be able to adjust to any diameter of steel rod (2). In this way it is obtained that one part only can enclose the universe of all the diameters of rods used in the civil construction. As we can see in the attached figures (Fig 1-2-3) the already cited support circles (3) that constitute the proper part confer it the distance to the formwork whichever the position where the part is placed - horizontal or vertical. However also the security of the workers is now assured by world-wide norms that protect workers of injuries caused by the cutting extremities surfaces of the iron rods. For this fact the legislation intends that all the iron rods must be covered by a protector capsule(1) which can minimize the contact with the cutting surfaces of the iron rods and hinders to the consequent and possible injuries. For this purpose the invention that here is presented as a spacer, can also serve, as a protector capsule when, during its manufacture, and still in mould, or in any occasion of its use, the capsule is connected like we can see in Fig 1 and Fig 2. In such a way the rod remains safe for the method above specified of involvement with a serrated brace(4) but also for the proper drawing of the iron rod that presents a striated configuration and, therefore, much more resistant to the attrition.

a way in structure rods placed in the horizontal or in the vertical position; linked for two circular supports (3) between them for a strengthened and concave (5) support where it supports the iron rods(2), possessing a serrated brace (4) involving the perimeter of the biggest diameter of the steel rods used in civil construction.

2. Spacer and protector capsule for iron rods used in concrete structures, that in accordance with the claim n° 1, is **characterized by** having a serrated brace (4) that, involve and moor all the variety of iron rods used in the civil construction.
3. Spacer and protector capsule for iron rods used in concrete structures, that in accordance with the claim n° 1, is **characterized** to be able to be drawn and to be executed in only one polyvalent piece part and used as a spacer or a protector capsule.
4. Spacer and protector capsule for iron rods used in concrete structures, that in accordance with the claim n° 1, is **characterized** for being made in plastic, recycled or not, or any another appropriate material.

Claims

1. Spacer and protector capsule for iron rods used in concrete structures that, in the state of the art, are presented now as normal spacers or only as protection capsules of security for steel rods of the concrete armours; **characterized in that** for to be, a protector capsule for multiples diameters of iron rods - (2) when a protector element is connected to it - (1) or, when not possessing connected the protector capsule (1) it function as simple spacer from formworks, being able to be used in both the cases (single spacer or protection capsule) as well as can be used in such

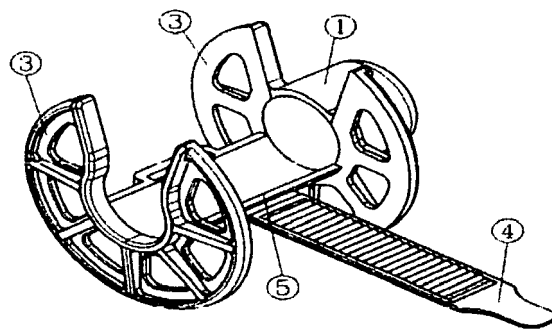


fig. 1

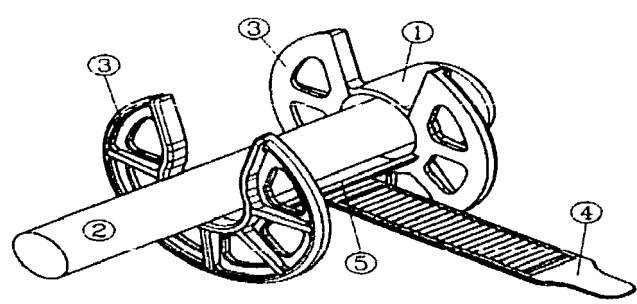


fig. 2

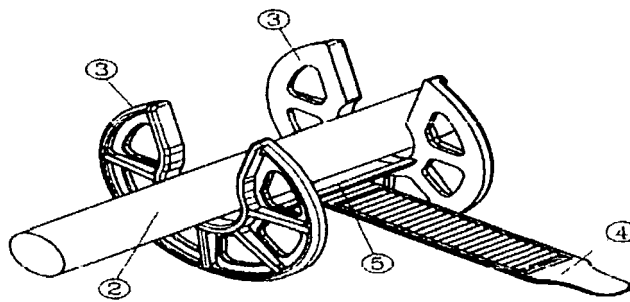


fig. 3

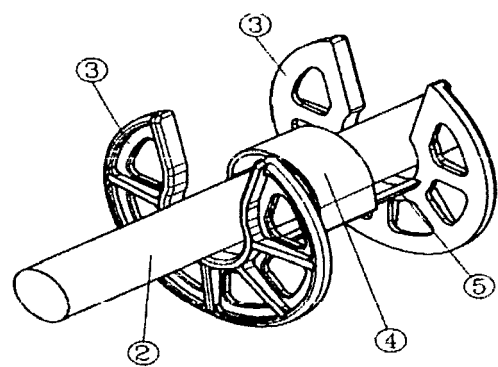


fig. 4

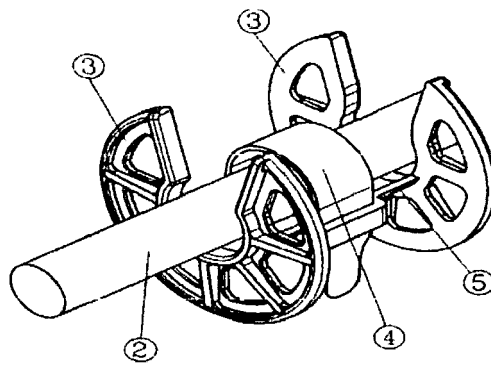


fig. 5